

translation

PCT/PATENT COOPERATION TREATY

10 Nov 2004 PCT/P 07 DEC 2004

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference WO 1 6 0 6 EGT	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/JPO3/09083	International filing date (day/month/year) 17. 07. 2003	Priority date (day/month/year) 18. 07. 2002
International Patent Classification (IPC) or national classification and IPC Int. Cl. H01M8/02, H01M8/10		
Applicant Honda Giken Kogyo Kabushiki Kaisha		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>1</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>	
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>	

Date of submission of the demand 13. 02. 2004	Date of completion of this report 12. 07. 2004
Name and mailing address of the IPEA/ Japan Patent Office (JPEA/JP) Postal Code 100-8915 4-3, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo Facsimile No.	Authorized officer MAEDA, Hiroyuki 4X-2930 Phone 03-3581-1101 Ext. 3477 Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/J P 03/09083

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1 - 40 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages 3 - 6 as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 1 received by this Authority on 13.02.2004
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1/25 - 25/25 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☒ the claims, Nos. 2
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP03/09083

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1, 3-6	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1, 3-6	NO
Industrial applicability (IA)	Claims	1, 3-6	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

- Document 1: JP2000-239488A (Nichias Corp.), 2000.09.05; claims, [0014] – [0023]
 Document 2: JP2000-234055A (Nichias Corp.), 2000.08.29; claims, [0010] – [0018]
 Document 3: JP2002-198063A (Mitsubishi Chemicals Corp.), 2002.07.12; claims, [0010]
 Document 4: JP2002-184420A (Mitsubishi Chemicals Corp.), 2002.06.28; claims, [0025]
 Document 5: JP2000-176654A (Ultex Corp.), 2000.06.27; entire document
 Document 6: JP6-290796A (Shin-etsu Polymers Co., Ltd.), 1994.10.18; [0023]
 Document 7: JP2000-012067 (Fuji Electric Co., Ltd.), 2000.01.14; claims, Fig. 3

Claim 1:

The invention as claimed in claim 1 lacks inventive step over D1 – D4 cited in the International Search Report.

As disclosed in D3 and D4, it has been known to employ a thermoplastic resin such as polyphenylene sulfide as a separator material. Accordingly, no difficulty is deemed to have existed in employing polyphenylene sulfide, as disclosed in D1 and D2, as a thermoplastic resin material for a separator.

Claims 3, 4:

The inventions as defined in claims 3 and 4 lacks inventive step over D1 to D6 cited in the ISR.

As shown in D5 and D6, it has been generally known to join two members together by ultrasonic welding. Accordingly, in the inventions disclosed in D1 and D2, no difficulty is found in employing the disclosed method for joining a gas diffusion layer with a separator.

Claims 5, 6:

The inventions as defined in claims 5 and 6 lacks inventive step over D1 to D7 cited in the ISR.

As shown in D7, it has been known in this field of technology to provide cooling water passages between two separators.

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CLAIMS

1. A method for manufacturing a fuel cell separator for sandwiching from both sides via diffusion layers an anode and a cathode disposed on an electrolyte membrane, the fuel cell manufacturing method comprising:

a step of obtaining a mixture by mixing a thermoplastic resin and a conductive material, the thermoplastic resin being a resin selected from ethylene / vinyl acetate copolymers, ethylene / ethyl acrylate copolymers, straight-chain low-density polyethylene, polyphenylene sulfide and modified polyphenylene oxide, the conductive material being carbon particles of at least one selected from black lead, Ketchen black and acetylene black;

a step of forming with this mixture a separator starting material having gas flow passage grooves in a contact face thereof to contact the diffusion layer; and

a step of irradiating the contact face of this separator starting material with an electron beam.

2. (canceled)

3. A method for bonding a fuel cell separator and an electrode diffusion layer, comprising:

disposing a carbon fiber electrode diffusion layer on a thermoplastic resin separator;

applying a welding pressure to the electrode diffusion layer